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URBAN MUNICIPAL COLLECTION

THE HEALTH SCIENCES BRIEFS

VOLUME III: RESEARCH

URBAN MUNICIPAL
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THE HEALTH SCIENCES BRIEFS

VOLUME III: RESEARCH

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THE HEALTH SCIENCES BRIEFS

VOLUME III: RESEARCH

The Faculty of Health Sciences has followed the tradition of the Faculties of Science and Engineering in identifying the establishment of flourishing research programs as one of its prime objectives. Faculty research currently embraces a wide range of activities, from basic animal, microbiological and biochemical work to clinical research and studies in health care delivery. This research is supported by external funding agencies to the extent of many millions of dollars annually, placing McMaster near the top in terms of research funds awarded to Canadian Faculties of Health Sciences or Medicine.

The Graduate Program in Medical Sciences, which is responsible for the training and intellectual development of career scientists, is closely linked to the research programs.

ORGANIZATION

As with the Education and Health Services programs, the Research programs are organized to a considerable extent across Faculty rather than departmental lines.

COMMITTEE ON SCIENTIFIC DEVELOPMENT

The responsibility for the development of research policy and the administration of research is vested in the Committee on Scientific Development (CSD), which is chaired by the Associate Dean (Research) and supported by a Secretariat.

The Committee on Scientific Development strongly encourages the development of collaborative and interdisciplinary research. The Secretariat of the CSD reviews all grants before submission, helps applicants to arrive at realistic budgets, and advises on possible sources of financial support. It assists the Faculty's Research Advisory Group in dealing with grant information, central facilities, equipment, financial resources and space management in support of the research community and the Faculty.

The CSD is responsible for allocation of research space in the Health Sciences Centre and for disbursement of limited "local"

funds. This arrangement aids the development of cooperative arrangements and ensures that resources are efficiently used.

OTHER RESEARCH COMMITTEES

Many faculty members carry out research in the teaching hospitals. A "two-tier" system has developed to facilitate the work of these individuals and groups, with Research Committees in each hospital playing a primary role but having assistance available from the CSD.

All research proposals which involve the use of human or animal subjects must adhere to specific ethical procedures and be reviewed before approval by either the Research Committee of the appropriate hospital or the Research Advisory Group of the CSD. Ethical reciprocity is granted between institutions, but utilization of resources (including space, patients, and patients' records) must be approved by the Board of Trustees of each institution.

CENTRAL RESEARCH FACILITIES

The Faculty has established central research facilities under the management of the Committee on Scientific Development. These operate on a cost-recovery, fee-for-service basis. Managers of the facilities and facility users' committees provide advice to the CSD.

CENTRAL FACILITIES

- **Analytical Ultracentrifuge**
- **Animal Care Facility**
- **Biomedical Engineering**
- **Computation Services Unit**
- **Drug Analysis Laboratory**
- **Electron Microscope Facility**
- **Glasswashing Facility**

RESEARCH DESIGN AND EXECUTION

Two special programs are available to researchers through the Department of Clinical Epidemiology and Biostatistics: the **Intrafaculty Service Program** and the **Regional Service Program** .

These two programs provide consultation with experts in health research methodology and biostatistics, and assistance with the following aspects of research: study definition, literature and data search, study design and methodology for data collection, study conduct, which might include questionnaire design, determination of sample size, and data collection.

FORMAL PROGRAMS

In six areas of research the Faculty has groups which have developed to the point where they are recognized as formal programs. Each has a chairman who has a major responsibility concerning the direction of growth of research activity. The work of each program is assessed according to agreed criteria by teams made up of external referees and McMaster faculty. The Faculty also has strength in a number of other areas, and smaller scale collaboration between various faculty members and their groups.

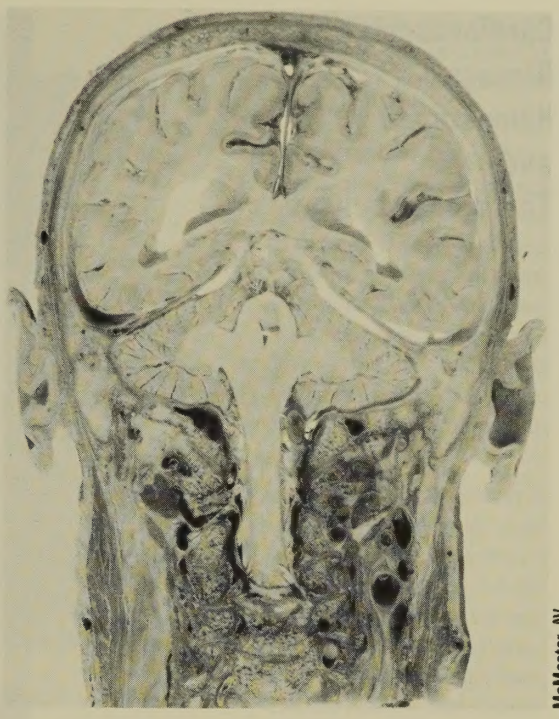
FORMAL RESEARCH PROGRAMS

- **Brain and Behaviour**
- **Cardiovascular Disease, Hemostasis and Thromboembolism**
- **Control of Smooth Muscle Function**
- **Educational Development**
- **Molecular Virology and Immunology** (formerly Host Resistance)
- **Reproductive Biology**

OTHER AREAS OF STRENGTH

- **Clinical Epidemiology and Biostatistics**
- **Gerontology**
- **Intestinal Diseases**
- **Molecular Genetics**
- **Nuclear Medicine**
- **Occupational Health**
- **Primary Care Research**
- **Respirology**

Brain and Behaviour



McMaster AV

Brain and Behaviour researchers form a network of scientists interested in the brain, the peripheral nervous system and behaviour - one of the most rapidly expanding areas of biomedical research. Members come from the Departments of Neurosciences, Psychiatry, Psychology, Medicine and Radiology. Three sub-programs have evolved within the Brain and Behaviour program:

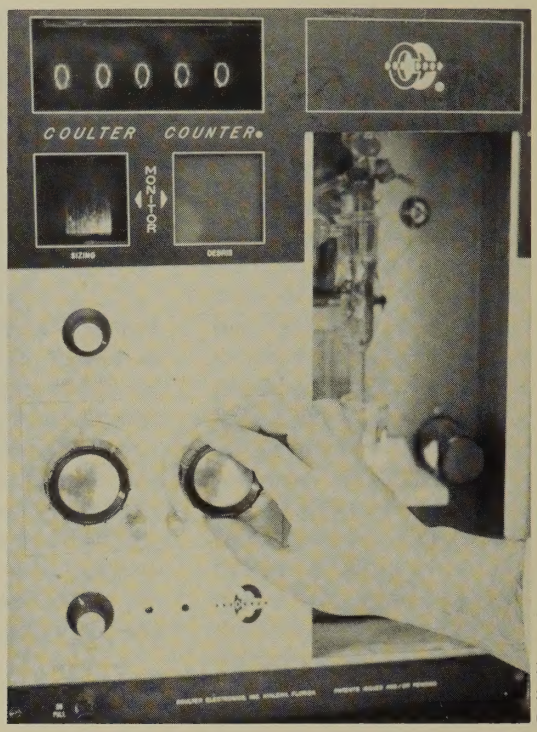
- **Brain Dysfunction in Psychiatric Disorder**, which focuses on the chemical and anatomical basis of brain function in normal and abnormal behaviour.
- **Cognitive Neurosciences,** which investigates the relationship between cognitive skills and neurobiological variables.
- **Developmental and Cellular Neurobiology**, which studies neuron/target interactions and the regulating trophic influences on neural activity.

Program members are actively pursuing research in several key areas:

- *The chemical basis of behaviour.* The basic approaches include the examination of neurotransmitter and limbic control of endocrine function, studies on the function of monoamines in complex behaviour, examination of the role of pineal indoles, the control of rhythms, and studies on brain targets for dopamine and indoleamines.
- *Developmental and cellular neurobiology.* This research focuses on investigations of neuron/target interactions and factors regulating trophic influences and physiologic activity. Studies include regulation of organelle size and number, plasticity in the nervous system, recovery of function after nerve injury, and expression of muscle phenotypes.
- *Affective disorders.* Research strategies include neuroendocrine approaches in relation to affective disorders and to antidepressant drug treatment, studies of genetics, examination of membrane transport, and psychosocial studies.
- *Positron emission tomography.* Studies include regional intercranial blood flow and metabolism of neurotransmitters in babies who have suffered birth damage, and in patients with Huntington's chorea, severe movement disorders and schizophrenia.
- *Schizophrenia.* The strategies for these investigations include pharmacoendocrine approaches, positron emission tomography, and cognitive, genetic and social approaches.
- *Cognitive neurosciences.* These studies examine the relationship between psychological and neurobiological variables. Psychological variables include cognitive and behavioural factors in adults and children and in normal and abnormal populations. Neurobiologic variables range from gross factors such as brain damage and cerebral dominance to molecular factors including neurophysiologic, neuro-endocrine and neuro-anatomic features.
- *Studies on epilepsy.* In this research, studies include intensive electro-physiologic investigations in clinical trials of new compounds, and the role of patient training, self-regulation and biofeedback in the control of seizure activity.

The relationship between the brain, peripheral nervous system and behaviour is one of the most rapidly expanding areas of biomedical research.

Cardiovascular Disease, Hemostasis and Thromboembolism



R. Hathiramani

The Cardiovascular, Hemostasis and Thromboembolism (CHT) program has two main areas of research interest:

- **Physiology and Biochemistry of Blood Components and the Vessel Wall.**
- **Clinical and Experimental Thromboembolism.**

The program's widely-based membership includes two Faculties (Health Sciences and Engineering) and a variety of specialties including biochemistry, biostatistics, cell biology, clinical chemistry, engineering, hematology, nuclear medicine, radiology, surgery and tissue pathology.

Program members are also involved in collaborative studies with other universities and with organizations in the community. Members of the CHT program are conducting research in the following areas:

- *Platelet biochemistry and its relationship to platelet function.*
- *Platelet function and metabolism* and the role of cyclic nucleotides.
- *Blood coagulation and fibrinolysis* and the role of proteolytic enzymes and their inhibitors.
- *Atherosclerosis.* Bioengineering investigations on the importance of blood flow factors in the development of atherosclerosis.
- *Thromboembolism.* Clinical studies on the prevention, diagnosis and treatment of venous thromboembolism involving the five hospitals affiliated with the Faculty of Health Sciences.
- *Stroke interventions* in both the acute and chronic management of patients.
- *Myocardial infarction.* Coordination of a number of clinical trials to assess the benefit of drug therapy for patients at risk for stroke or myocardial infarction, and the benefits of early introduction of fibrinolytic therapy in the early treatment of evolving myocardial infarction.
- *Heart surgery.* Experimental studies on prosthetic heart valves and aorto-coronary bypass surgery.

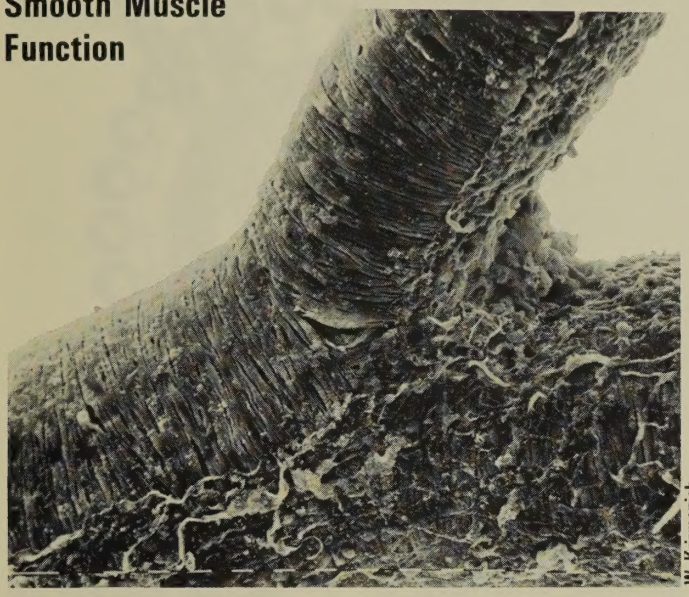
Program members are also involved in education programs for McMaster undergraduate, graduate and postgraduate students, and with postgraduate education programs outside the Hamilton area.

R. Hathiramani

(Above) The Coulter counter is a basic tool for laboratory study of blood components.

Impedance plethysmography provides clinical evidence of thromboembolism.

Control of Smooth Muscle Function



W. Krizmanich

Smooth muscle cells of a bifurcated artery are revealed after removal of the tunica adventitia.

The Smooth Muscle Program is organized on an interdisciplinary multi-departmental basis, providing a focus for scientists and clinicians of varying backgrounds to study basic and applied problems in the control of smooth muscle function. Interacting groups are involved in the following areas:

- **Control of Gastrointestinal Muscle.** Control of gastrointestinal muscle with special emphasis on human large bowel, esophagus and pylorus, and the role of peptides acting as peptide neuromediators, neuromodulators and hormones.
- **Smooth Muscle Function.** The role of isolated single smooth muscle cells in the investigation of smooth muscle function, and the role of smooth muscle plasma membrane in control of drug actions and cellular ion distributions and contractions.
- **Hypertension.** The role of changes in the vascular smooth muscle plasma membrane in hypertension, and the role of altered structure of smooth muscle in the origin and perpetuation of hypertension.
- **Myogenic, Neurogenic and Hormonal Control.** The use of electrophysiological techniques (microelectrodes, sucrose gap) to elucidate myogenic, neurogenic and hormonal control of smooth muscle.
- **Mediation.** The nature of inhibitory nerve mediator to gastrointestinal, lung and genitourinary smooth muscle.

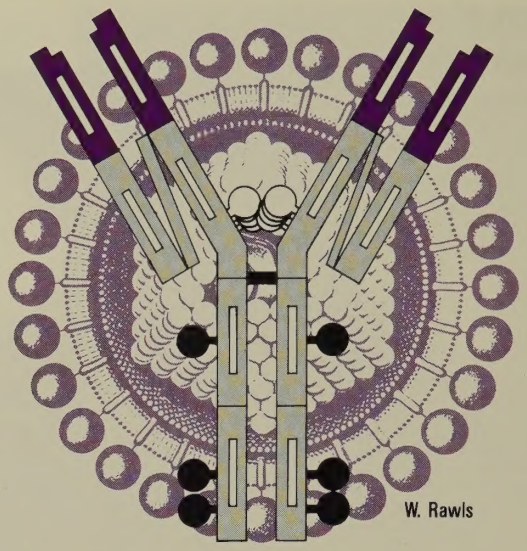
Asthma. The alterations in airway smooth muscle causing hyper-reactivity in asthma, and the mechanisms underlying asthma.

- **Control of Uterine Activity.** The control of uterine activity including the role played by gap junctions between myometrial cells on the occurrence of parturition, and the control of gap junctions by hormones.
- **Electrical and Contractile Activity.** The study of the electrical and contractile activities of smooth muscle by computer-aided signal and pattern analyses.

The research of the Smooth Muscle Program has demonstrated several facts:

- that hypertension involves changes in membrane function of vascular muscle and other cells;
- that an increase in the number and size of vascular smooth muscle cells may participate in the initiation as well as the maintenance of hypertension;
- that parturition may require the absence of myometrial gap junctions until term (to avoid premature labour) and their presence at term to allow synchronous uterine contractions, and that formation of myometrial gap junctions is under the control of ovarian steroids and uterine prostaglandins;
- that control of calcium ion in smooth muscle cells (and hence control of contractions) is a property of the plasma membrane and may occur through several processes such as a calcium pump, calcium binding, and sodium-calcium exchange; and that another ion pump appears to be involved in sequestration of calcium in endoplasmic reticulum;
- that gastrointestinal smooth muscle is controlled by myogenic activity which consists of coupled relaxation oscillators;
- that smooth muscle may give abnormal responses to some stimulants and that irritable bowel syndrome in patients may not be characterized by any alterations in myogenic control;
- that reproducible measurements of altered airway function can be achieved in asthmatics;
- that the responsiveness of airway muscle to chemical mediators (non-specific reactivity) is increased in asthma, and the degree of increase relates to the severity of the asthma;
- that allergen exposure in sensitized subjects may heighten non-specific reactivity, independent of alterations in airway geometry or deposition of inhaled histamine.

Molecular Virology and Immunology



A model superimposes an antibody molecule on a human T-lymphocyte leukemia virus.

The Molecular Virology and Immunology Program (formerly called the Host Resistance Program) is a multidisciplinary group of members working together in the broad field of host response to environmental factors. Such responses have an impact on problems in both human health and biology. The program's areas of expertise include:

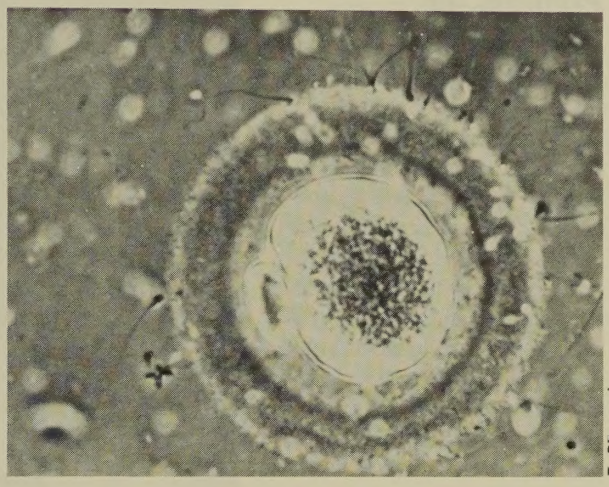
- **Cellular Immunology.**
- **Lymphocyte Traffic.**
- **Immune Responses to Viral Infections.**
- **Immunization Protocols.**
- **Mechanisms of Viral Infection.**
- **Carcinogenesis.**
- **Molecular Virology.**

Several departments within the Faculties of Health Sciences and Science are represented in the activities of the program. Members' activities also cross international boundaries. The National Cancer Institute's cancer research group is intrinsic to the Molecular Virology and Immunology Program, permitting the application of basic biological and immunological information to the understanding of viral involvement in tumour induction.

While primarily a basic research group with involvement in undergraduate and graduate education, the Molecular Virology and Immunology Program also provides the clinical service in immunology to the region, including diagnostic laboratory services, clinics, and postgraduate training opportunities in allergy and clinical immunology. The research activities of the program emphasize the following areas of interest:

- *Immunological factors in normal pregnancy.* The fetus is the most common type of graft that occurs in nature, and its prolonged retention and subsequent rejection may be under immunological control.
- *Growth and development of the immune system.* The goal of studies in this area is a better understanding of normal maturation and senescence of the immune system, where new information may permit a more rational approach to disorders of abnormal immune function such as autoimmune disease and immune deficiency. Parameters of the immune system under study include cellular components, lymphocytes, eosinophils and basophils, and humoral factors involved in inflammation.
- *The special role of immune mechanisms at mucosal surfaces.* The definition of immune defenses at various mucosal surfaces — gastrointestinal, respiratory and urogenital — and their relationship to the immune system will provide new approaches to the prevention of diseases which arise from local infections at mucosal sites.
- *Host/virus interactions.* The factors controlling virus replication at the cellular level and the immune response of the host are under investigation. Of special interest are the circumstances which result in viral persistence.
- *Virus neoplasia.* One manifestation of the interaction between cells and certain viruses is altered expression of genetic information on the cell, which may lead to malignant transformation of the cell. Studies of the mechanisms of transformation and gene regulation are being conducted using modern techniques of molecular genetics.
- *Genetics of host defense mechanisms.* Susceptibility to disease is clearly genetically determined and linked to histocompatibility genotypes. The group is carrying out fundamental and clinical studies on the genetics of host resistance.

Reproductive Biology



R. Bhavnani

A human egg and sperm unite.

The Reproductive Biology Program brings together clinical and basic scientists who are involved in the identification of problems related to reproduction. The term "reproduction" is used in the widest sense to include not only the anatomy, biology and biochemistry of the reproductive process, but the attitudinal aspects of sexuality relevant to human fertility and its control. The interaction between clinical and basic investigators within the Reproductive Biology Program permits identification of relevant problems in human reproduction and provides opportunities for a multidisciplinary approach to these investigations. The Program's areas of investigation can be grouped as follows:

- **Perinatology,** with a major emphasis on clinical research in fetal and neonatal medicine.
- **Ovarian Physiology, Implantation and Sexuality,** merging basic investigation in fertilization with clinical problems of infertility and sexuality.
- **Oncology,** with a particular emphasis on uterine carcinoma and ovarian concerns.
- **Parturition,** with emphasis on the mechanisms involved in the initiation of labour.

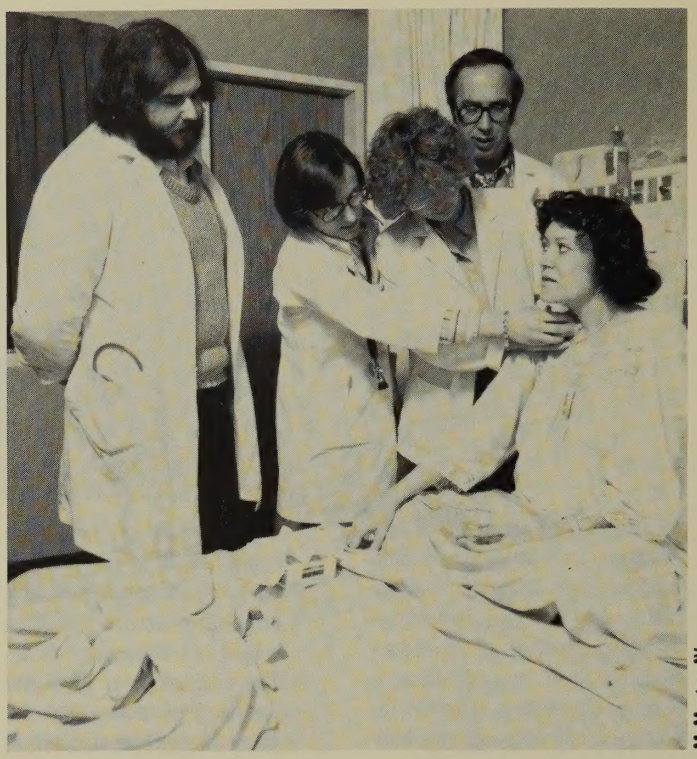
The following are some examples of ongoing investigations:

- *Fetal oxygenation,* using animal models to study the relationship of fetal oxygen levels to parameters of fetal well-being under both normal physiological conditions and during hypoxia induced by a variety of techniques.
- *The role of fetal glycogen* during development and the effect of maternal diabetes on fetal lung maturation.
- *Control of follicular development and oocyte maturation,* with emphasis on the hypothalamus-pituitary ovarian axis at different stages of development.
- *Identification of sociological factors* which occur as a consequence of a diagnosis of infertility.
- *The role of opiates* in the regulation of the menstrual cycle.
- *Similarities and dissimilarities in the two sides of the reproductive tract through investigations of the reproductive physiology of female little brown bats.*
- *Psychosocial determinants* of reproductive behaviour and attitudes toward conception and contraception.
- *Development of prognostic indicators* for reproductive wastage and successful outcome in *in vitro* fertilization therapy.
- *Development of animal models* for the study of reproductive pathophysiology.
- *Endometrial progesterone responses* among infertile women.
- *The roles of estrogens* in the etiology of endometrial cancer.
- *Mechanisms of toxicity* of radiation and chemotherapeutic agents on the ovary.
- *Regulation of myometrial excitability* and the mode of action of uterine stimulants.
- *Mechanisms of action and biological function of relaxin* on the uterus.
- *Regulation of estrogen and progesterone receptors* in human endometrium maintained in culture.
- *Pharmacokinetics of conjugated equine estrogens* in postmenopausal women.
- *Immunological interactions* of the maternal/fetal interface.
- *The role of suppressor factors* produced by early human preimplantation embryos.

The Reproductive Biology Group collaborates with other groups in the Faculty and outside McMaster, and its members are also extensively involved in the undergraduate MD and Medical Sciences Graduate Program.

Members of the Reproductive Biology Program have made major contributions to the understanding of the basic mechanisms of reproduction which have led to changes in the clinical management of problems related to pregnancy, infertility, and the menopause.

Program for Educational Development



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One of the many research projects of the Program for Educational Development is the development of measures for evaluating the clinical skills of students.

The Program for Educational Development (PED) conducts an active program in educational research. Many of its research activities fall within the purview of one of the following PED activity groups:

- **Clinical Reasoning.** This group is conducting basic research on the psychology of clinical reasoning, including the focus on the thinking process, visual perception in fields such as radiology and dermatology, organization of expert memory, and the role of knowledge in solving clinical problems.

- **Continuing Education Research.** This group maintains continuing review of clinical trials testing innovations in continuing health sciences education, and of the design and execution of projects evaluating new continuing education techniques. Among the many projects the group has undertaken are evaluation of informal vs formal continuing education, examination of teleconferencing, and assessment of direct delivery of drug information to physicians' offices by a pharmacy representative.

- **Dissemination and Use.** Members are concerned with the production of reviews of the literature pertaining to the dissemination and application of useful health care knowledge and development. The group also produces studies on methods for improving the use of health care knowledge. Such studies have included assessment of clinical librarian services, the development of personal information systems, and self-directed learning skills programs.

- **Evaluation Measures.** This group is studying methods for evaluating student competence and performance. One example is the evaluation of clinical skills using different strategies such as direct observation, record review, ratings by supervisors, and simulated and standardized patients.

- **Program Evaluation.** Members are involved in studies on the effectiveness and efficiency of the educational programs of the Faculty and the success of graduates of these programs. Areas examined include admission, exit, and followup of McMaster students, and assessment of major curricular changes in education programs.

- **Other.** Other studies take place which do not fall naturally within these major areas. Examples include a study of the factors affecting performance of health care teams; identification of issues in self-directed learning; and studies of education programs in community settings.

Program for Educational Development studies are planned and conducted in collaboration with the education programs within the Faculty of Health Sciences. The objectives of the program are twofold: to enrich the understanding of various facets of the process of problem-based learning, and to develop specific methods and tools to enhance learning and evaluate its effectiveness.

The results of the studies conducted by PED groups have not only had an impact on the design of educational programs at McMaster; they have contributed significantly to the general understanding of basic issues in clinical problem-solving, problem-based learning and evaluation.

CLINICAL RESEARCH

The combined strengths of the clinical departments and the Department of Clinical Epidemiology and Biostatistics (CE&B) make McMaster one of the leading centres of clinical research. Faculty and staff of the Department of CE&B are actively engaged in research projects involving both content-specific and methodologic challenges. A sampling of ongoing or completed studies in the following major categories of research gives an indication of the breadth and variety of these involvements.

- *Health Needs and Natural History.* Studies have been conducted on the incidence and sequelae of injuries in children sustained at school; the development of more efficient methods for estimating the prevalence of hypertension in the community; and the psychosocial problems of burn victims.
- *Etiology.* Studies include the development of evaluation standards for the performance and interpretation of etiology research; investigation of the causes of antisocial behaviour in children; and examination of the relationship between lung cancer and air pollution.
- *Diagnostic Tests.* Studies have included evaluation of a digital diagnostic imaging unit; evaluation of diagnostic tests in venous thrombosis; and development of guidelines for diagnostic tests in general and their modification for high technology evaluation.
- *Effectiveness Studies.* Research has included a study of the success of a geriatric assessment unit; trial of extracranial/intracranial bypass in patients with strokes; and development of evaluation standards for the performance and interpretation of effectiveness studies.
- *Patient Compliance.* These studies have included trials of compliance-improving strategies in patients with hypertension; development of methods for measuring compliance of antihypertensive drugs; and development of evaluation standards for the performance and interpretation of patient compliance studies.
- *Compliance/Education for Health Professionals.* Activities include development and testing of new methods for improving dissemination and use of health care knowledge; assessment of diagnostic skills in medical students; and use of simulated patients for assessing performance of health professionals.
- *Efficiency Studies.* These include a trial to study the efficiency of home care for the elderly; a comparison of hospital utilization trends in Ontario and Saskatchewan; and development of evaluation standards for the performance and interpretation of efficiency studies.
- *Other methodological research* includes the development of databases and statistical software.

One of the strengths of the Faculty's research philosophy is the emphasis on programmatic and collaborative research. Many important issues in basic, clinical and health care research require a team approach to problem identification and solution. CE&B faculty have contributed to a series of multidisciplinary projects that bring basic research from the laboratory bench to the bedside and thence to the community. Among these projects are the thromboembolism research program, the gerontology program, and studies in primary care involving nurses, physicians and physiotherapists.

OTHER STRENGTHS

GASTROINTESTINAL DISEASE

The interdisciplinary Intestinal Disease Research Unit (IDRU) is engaged in research into gastrointestinal diseases, particularly ulcerative and inflammatory disease of the GI tract. The unit has involvements in basic, applied and clinical research, clinical service, and education.

Chedoke-McMaster Hospitals

IDRU researchers study ulcerative and inflammatory disease of the GI tract.

The unit includes members of the Division of Gastroenterology of the Department of Medicine, the Molecular Virology and Immunology program, Smooth Muscle program and Brain and Behaviour program, and the Department of Clinical Epidemiology and Biostatistics.

GERONTOLOGY

The R. Samuel McLaughlin Centre on Gerontological Health Research supports the expansion of research in this area in the Faculty of Health Sciences at McMaster University. A multidisciplinary group of researchers coordinates the Centre's activities, which cover the full spectrum of gerontological health research including basic biology and topics in clinical care and health care delivery.

The Centre provides support for research fellows on such projects as the evaluation of day hospitals for the elderly, the use of prescription and non-prescription drugs by the elderly, and the biology and treatment of peripheral vascular disease in the elderly. The fellowships are intended to develop the research knowledge and skills of Canadian physicians, nurses, physiotherapists, occupational therapists, social workers, pharmacists and other health-related professionals whose primary interest is in the health problems of the elderly and/or the biology of aging.

The Centre also supports the recruitment and start-up funding of junior faculty researchers whose major activities focus on gerontological health research within the Faculty of Health Sciences. Financial assistance is provided to principal investigators for the development of research proposals, the staging of seminars, and the dissemination of research results.

The Centre co-sponsors conferences with a number of other organizations on topics associated with aging.

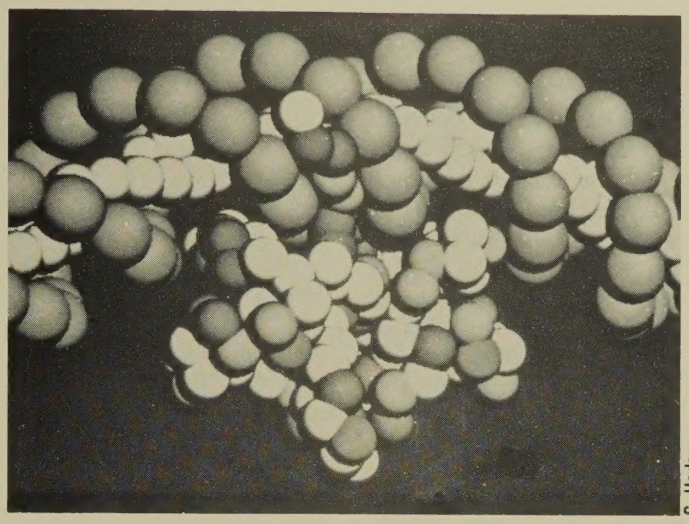
St. Peter's Hospital

Health maintenance in the elderly is one area of McMaster's gerontological research.

Health care for the ill elderly is another area of study.

MOLECULAR GENETICS

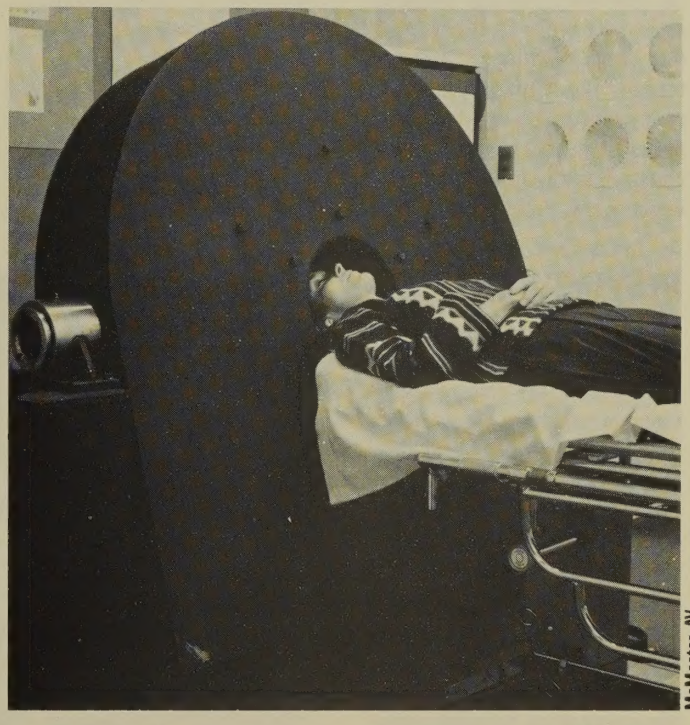
The Departments of Biochemistry and Pathology house several research programs which exploit molecular genetics to solve fundamental biologic problems. The Department of Pathology is studying mechanisms of DNA replication and the role of viruses in transforming normal cells to malignant ones. The Department of Biochemistry uses genetic technology to elucidate the nature of gene regulation, eukaryotic replication, protein and membrane biogenesis, and structure-function relationships in biologically important macromolecules.



C. Harley

NUCLEAR MEDICINE

The Nuclear Medicine group at McMaster is actively involved in the development of positron emitting radiopharmaceuticals to measure chemical activity in the brain. This group built one of the three positron emission tomographic (PET) scanners in Canada and is using it to facilitate research into neurological disorders such as Parkinson's disease, Alzheimer's disease, schizophrenia, epilepsy and stroke. The PET scanner, which is also used clinically, services several other Ontario universities.



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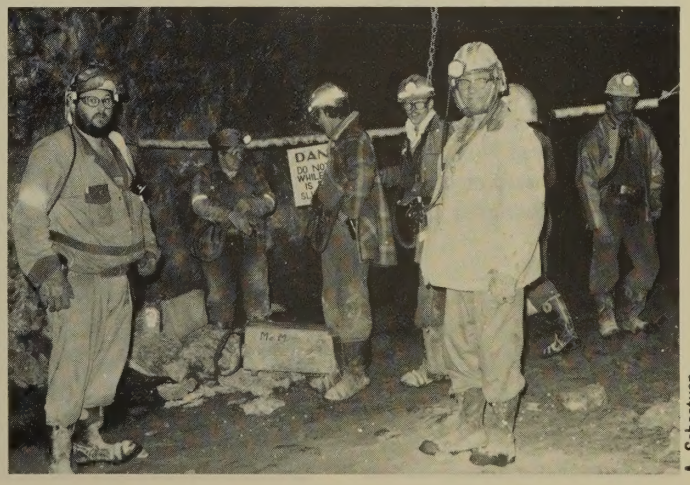
OCCUPATIONAL HEALTH

The Occupational Health Program is a multi-faceted one with educational and research components and a number of special services. Its inter-professional membership includes physicians, epidemiologists, a nurse/researcher, occupational hygienists and occupational health researchers. The program has a high research profile with a major emphasis on the resolution of practical problems in industry, al-



A. Sebestyen

Molecular genetics is being used to solve fundamental biologic problems.

One of Canada's first three PET scanners, built by McMaster researchers in Nuclear Medicine, is used to aid research into neurological disorders.

Occupational health in the mines is a subject of study by researchers in the Occupational Health program.

though basic research plays an important role.

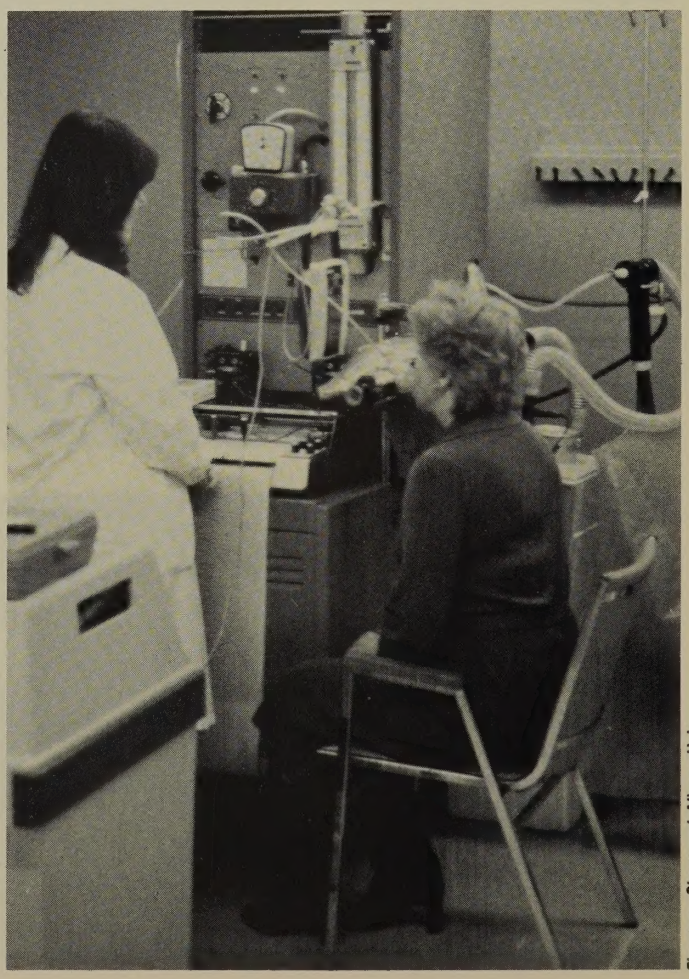
An Occupational Health Laboratory, one of the few in Canada accredited by the American Hygiene Association, is an essential component of this teaching resource, providing industry and the general public with a facility for the analysis of occupational hygiene samples and survey work.

PRIMARY CARE RESEARCH

This new program, jointly sponsored by the Department of Family Medicine and the School of Nursing, will determine the nature of primary care research projects to be undertaken by the Faculty and facilitate interdisciplinary endeavours in this field.

RESPIROLOGY

St. Joseph's Hospital is the site of the Firestone Regional Chest and Allergy Unit, which focuses on respiratory diseases such as asthma, chronic bronchitis, emphysema and fibrosing alveolitis. Major contributions to the understanding of airway hyperreactivity have come out of the research done there, while improved therapy of asthma has resulted from research into aerosol delivery systems. Recently, collaborative work between scientists at the Firestone Unit and the Immunology Group at the Health Sciences Centre has resulted in new insights into inflammation and fibrosis. These advances, it is hoped, will lead to improved preventative measures and therapy for such conditions.



Firestone Chest and Allergy Unit

A researcher at the Firestone Regional Chest and Allergy Unit measures respiratory function.

SELECTED READINGS

*The following readings provide further information and a historical perspective on McMaster's Faculty of Health Sciences. Copies are lodged in the Reserve Collection of the Health Sciences Library in a binder entitled "Health Sciences Briefs — Selected Readings" and in the Faculty Orientation Room in the Health Sciences Library. Items marked with one asterisk * are in-house publications. Those mark-ed with two asterisks ** are available through the Faculty of Health Sciences' Sales and Rental Program, HSC-1G6, McMaster University, Hamilton, Ontario L8N 3Z5.*

FACULTY ORGANIZATION:

Evans JR. Organizational patterns for new responsibilities. J Med Educ 1970; 45:988-999.

An early description of the goals of the Faculty of Health Sciences, and a description of the organizational arrangements created to meet the varied goals of the Faculty.

Fraenkel GJ. Medical education: McMaster revisited. Br Med J 1978; 2:1072-6.

A critique of the McMaster program after ten years of experience by the visiting dean of an Australian medical school.

Hamilton JD. The McMaster curriculum: a critique. Br Med J 1976; 1:1191-6.

Describes the history and objectives of the McMaster MD program and its curriculum, appraises its strengths and problems, and offers suggestions for its application in other universities.

Mustard JF. The Faculty of Health Sciences at McMaster University, Canada. IN: Health, Higher Education and the Community. Paris, France: Organization for Economic Co-operation and Development, 1977; 199-210.

Describes the development of the Faculty of Health Sciences during its first ten years (1965-1975), including its policies and objectives, internal organization, relationships with the community, and programs in education, research and health services.

Mustard JF, Neufeld VR, Walsh WJ, Cochran J, (eds). New trends in health sciences education, research and service: The McMaster experience. New York: Praeger, 1982; 204 p.

Based on the Faculty of Health Sciences' 10th Anniversary Conference in May, 1980, this book of essays describes the development over 14 years of McMaster's Health Sciences program together with its special features, and presents analyses of similar experiences in other institutions. Included are followup studies of McMaster's medical graduates.

NB. In 1972, the year McMaster graduated its first class of medical students, the Journal of the Royal College of Physicians of London devoted its entire July issue to the "McMaster experiment." Readings from this issue (J R Coll Physicians Lond 1972; 6(4)) provide further historical information.

RESEARCH

* Committee on Scientific Development (CSD). Faculty of Health Sciences, McMaster University. Hamilton, Ontario 1984.

A description of the purpose and responsibilities of the CSD, the official Research Committee for the Faculty of Health Sciences.

Gent M, Leeder SR, Sackett DL. Making research relevant. Med J Aust 1977; 2:807-12.

A review of the collaborative medical and health care research carried out by the Department of Clinical Epidemiology and Biostatistics at McMaster between 1970 and 1976.

Mustard JF. Health research and graduate education. J R Coll Physicians Lond 1972; 6:373-79.

A description of the research policies and objectives established by the Faculty of Health Sciences, the mechanisms for research administration, coordination and funding, and the development of graduate programs which carry out its research objectives.

Bienenstock J. Host resistance between friends. J R Coll Physicians Lond 1972; 6:407-11.

Describes an interdisciplinary research program in immunology.

Hirsh J, Regoeczi E. Thromboembolism and haemostasis programme. J R Coll Physicians Lond 1972; 6:399-406.

Describes an interdisciplinary research program that has additional components in education and service.

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